GPS_TIME

Software User's Guide

GPS_TIME Segment Version 1.0.0.0 for GCCS Version 2.2

30 September 1996

Inter-National Research Institute, Inc.
12350 Jefferson Avenue, Suite 400
Newport News, Virginia 23602

The following trademarks and registered trademarks are mentioned in this document. Within the text of this document, the appropriate symbol for a trademark (™) or a registered trademark (®) appears after the first occurrence of each item.

Solaris™ is a trademark of Sun MicroSystems, Incorporated.

SPARC® is a registered trademark of SPARC International, Inc. Products bearing the SPARC™ trademark are based on architecture developed by Sun MicroSystems, Incorporated.

SunStation™ is a trademark of Sun MicroSystems, Incorporated.

Issue Date: 30 September 1996
Software Version Number: GPS_TIME Version 1.0.0.0

Copyright © 1996
Inter-National Research Institute, Inc.
All Rights Reserved

This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause at DFARS 252.227-7013 (OCT 1988).

GPS_TIME Software User' s Guide

Table of Contents

List of Figures

This page has been intentionally left blank.

Section 1 What Is GPS_TIME?

GPS_TIME is a software segment within the Common Operational Picture (COP), a software application for the Global Command and Control System (GCCS) on the Unified Build (UB) platform. The COP allows the near real-time exchange of track data between participating nodes on a wide area network (WAN) and/or a local area network (LAN), as depicted in Figure 1-1 (and further discussed in the COP Software User's Guide).

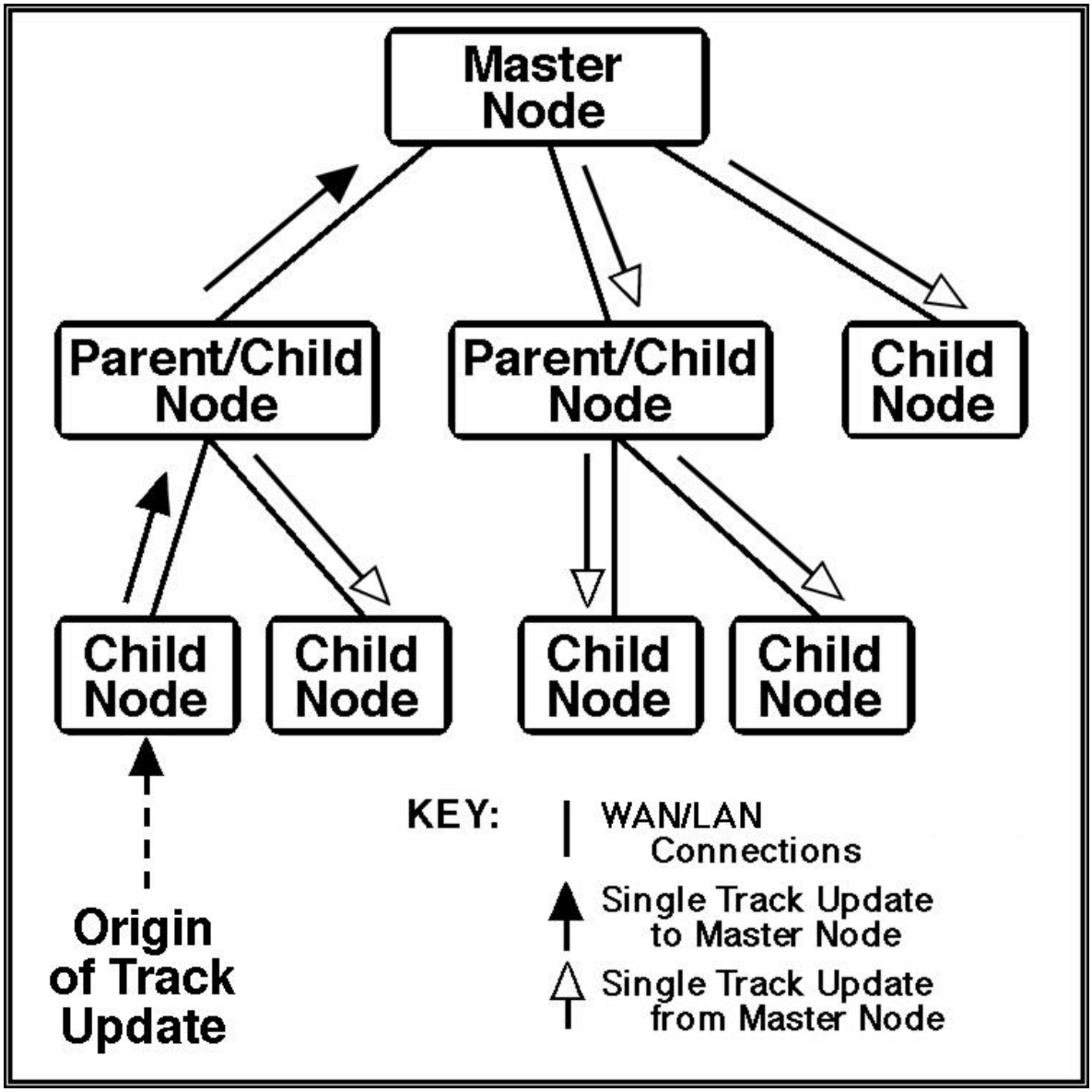


Figure 1-1 COP Data Flow

The GPS_TIME segment enables a node to synchronize its system clock to match the time provided by the Global Positioning System (GPS). This segment can only be installed if

the node has access to a GPS device through a serial line and a SPARC® SunStation™ computer running Solaris™ . Typically, a master node installs this segment so that it can "time-sync" to GPS using satellite data supplied at regular intervals. To receive time-sync data, the master node must also add and activate an NMEA2 channel.
For instructions on installing the GPS_TIME segment, see Section 2. For instructions on adding and activating an NMEA2 channel, see Section 3.

Section 2 How Do I Install It?

The GPS_TIME segment is provided on a 4mm or 8mm tape by the Defense Information Systems Agency (DISA). A GCCS user with system administration (sysadmin) privileges must install the GPS_TIME segment onto the GCCS workstation with access to a GPS device. The tape containing this segment must be physically inserted into a compatible device on either the local GCCS workstation or a remote machine accessible via network connection to the local GCCS workstation.

Installing the GPS_TIME segment requires the use of the GCCS Segment Installer option. This option does the following:

- Identifies which applications/segments are loaded on the local workstation.
- Identifies which applications/segments are available on a tape or on a Segment Installation Server.
- Provides the capability to install and/or de-install applications/segments on the local workstation.

The Segment Installer installs software in the /h file system on the local workstation. When this file system is approximately 80 percent full, the Segment Installer installs software in /home1, followed by /home2, /home3, etc. The 80-percent constraint can be overridden on systems with limited disk space by using the Disk Space Override feature of the Segment Installer. In most cases, the software installation process is automatic, requiring no further actions on the part of the user.

To install the GPS_TIME segment:

1. At the local GCCS workstation, log into GCCS as sysadmin, following your normal site procedures. The SYSTEM ADMINISTRATOR screen appears.

2. Insert the tape containing the segment into the appropriate tape drive (on either the local workstation or a remote machine) and wait until the control panel LEDs stop blinking.

3. From the Software menu on the local GCCS workstation, select Segment Installer. The System Processing Warning window appears, informing you that any active sessions on the system will be terminated. In order to use the Segment Installer option, you must terminate all active sessions. Please advise all other users who may be affected.

4. To terminate all active sessions, click OK. The SEGMENT INSTALLER window appears.

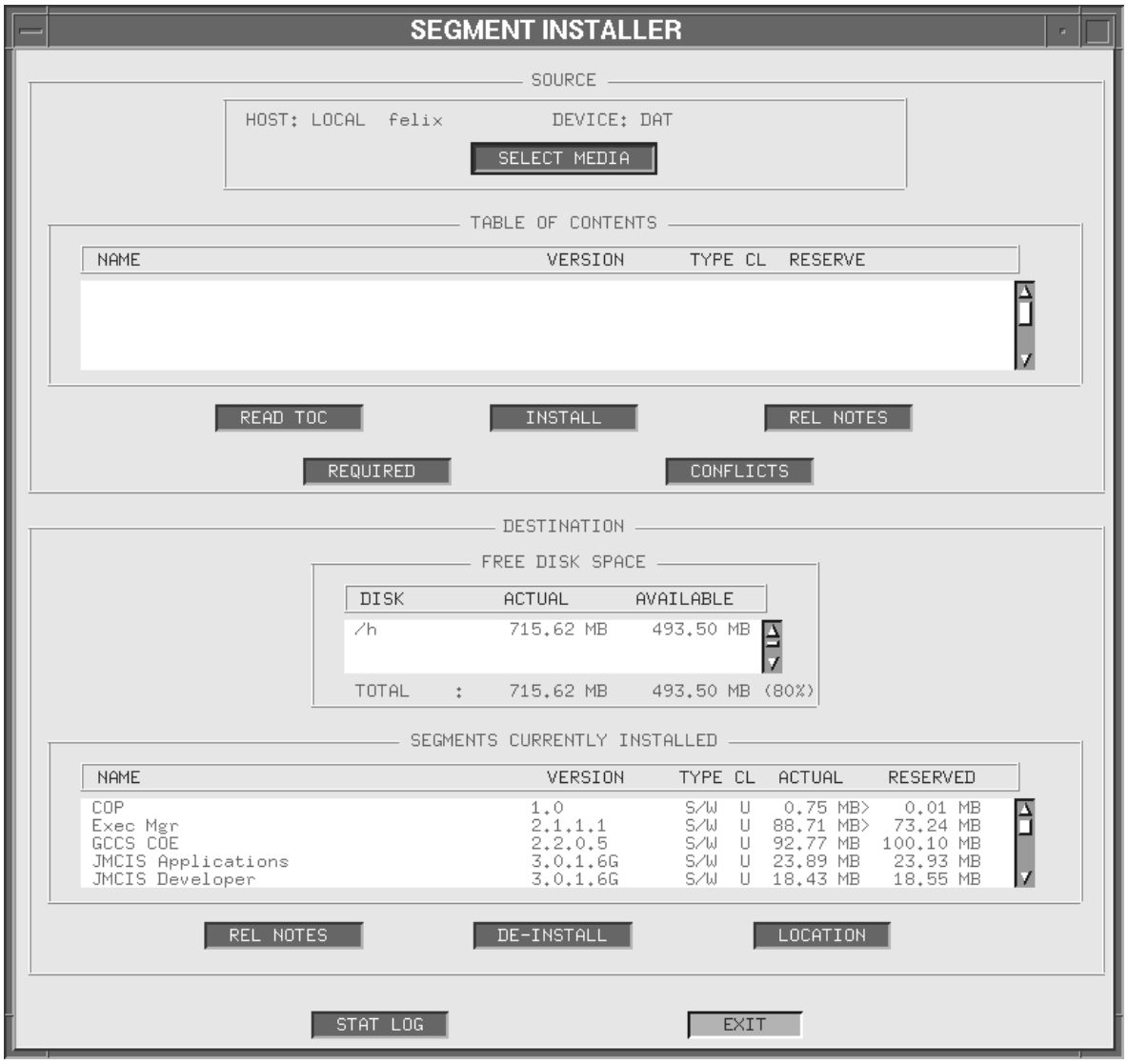


Figure 2-1 SEGMENT INSTALLER Window

If loading from a local device, proceed directly to Step 9. If loading from a remote or non-standard device, complete Steps 5 through 8 before proceeding to Step 9.

5. In the upper portion of the SOURCE box in the SEGMENT INSTALLER window, click SELECT MEDIA. The SELECT MEDIA window appears.

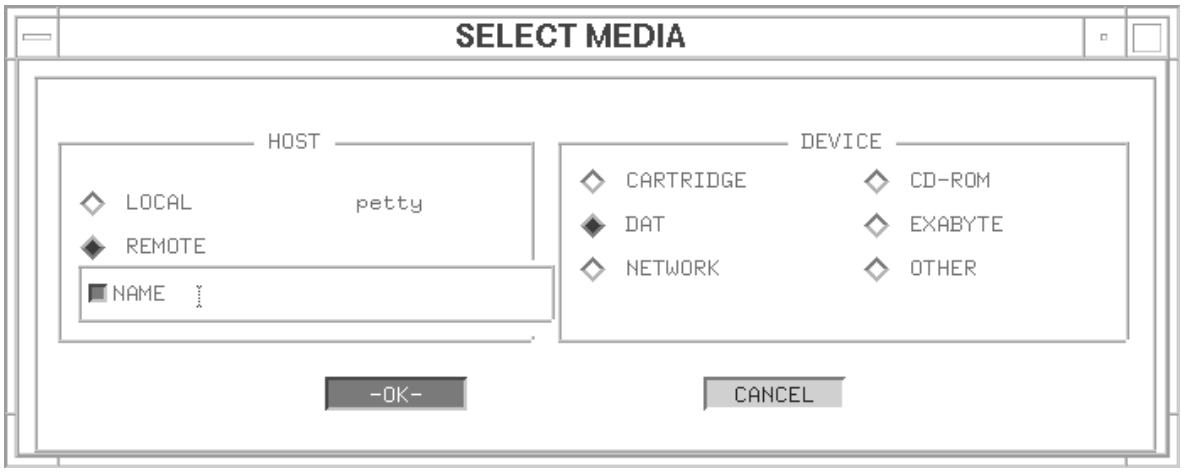


Figure 2-2 SELECT MEDIA Window

6. In the DEVICE box, select the media type of the segment tape (i.e., DAT or EXABYTE). (To manually enter the filename of the device, select OTHER and then enter the device name in the field that appears. CAUTION: It is highly recommended that only no-rewind devices be used.)

7. In the HOST box, select the location of the segment tape:

   a. If the segment tape is loaded on the local GCCS workstation, select LOCAL; then proceed to Step 8.

   b. If the segment tape is loaded on a remote machine, select REMOTE. A NAME field appears.

      - Click the button next to the NAME field to display a list of hosts available on the network.

      - From the list of available hosts, select the name of the remote host where the tape is loaded.

8. Click OK to return to the SEGMENT INSTALLER window.

9. Click READ TOC. The TABLE OF CONTENTS box displays a list of each software segment contained on the tape. This list contains the following column headings:

NAME
Name of the segment (e.g., GPS_TIME).

VERSION
Version number of the segment.

TYPE
Type of the segment (e.g., S/W for software).

CL
Classification of the segment (e.g., U for UNCLASSIFIED).

RESERVED
Space reserved by the system on the local workstation in order for the segment to be installed.

10. From the list in the TABLE OF CONTENTS box, select GPS_TIME; then click INSTALL.

11. When the installation is complete, a warning window appears, stating Selected Segment(s) Installed Successfully.

12. Click the EXIT button to dismiss this warning window and return to the SEGMENT INSTALLER window.

13. To view the release notes for a segment:

    a. Select the segment in the SEGMENTS CURRENTLY INSTALLED box and click REL NOTES. The RELEASE NOTES window appears.

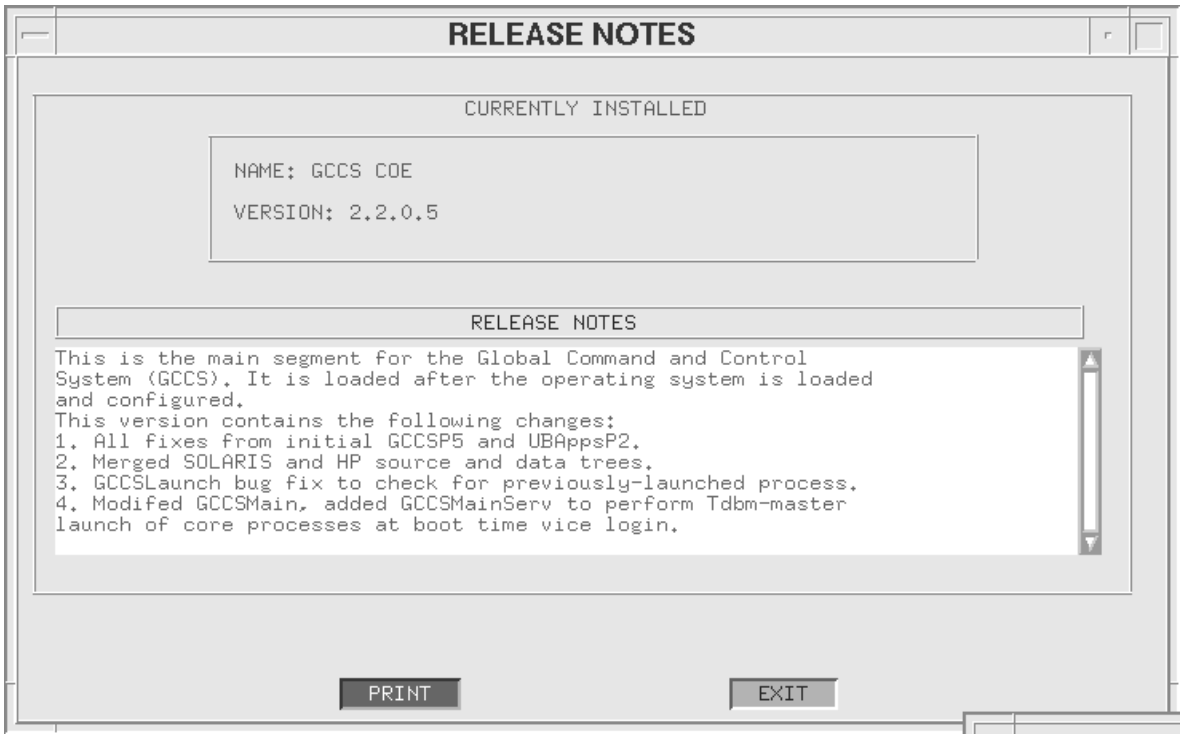


Figure 2-3 RELEASE NOTES Window

The RELEASE NOTES window displays the following information:

- NAME: Name of the segment
- VERSION: Version number of the segment
- RELEASE NOTES: Release notes for the segment (if any)

b. To print the contents of the RELEASE NOTES window, click PRINT.

c. To exit the RELEASE NOTES window and return to the SEGMENT INSTALLER window, click EXIT.

14. To remove a segment from the system: Note first that the segment will be removed without the appearance of a warning window; then select the segment in the SEGMENTS CURRENTLY INSTALLED box and click DE-INSTALL. When the segment has been de-installed, a notice window appears, stating SEGMENT SUCCESSFULLY DE-INSTALLED.

15. To view the location of a segment on the local workstation:

a. Select the segment in the SEGMENTS CURRENTLY INSTALLED box and click LOCATION. The SEGMENT LOCATIONS window appears.

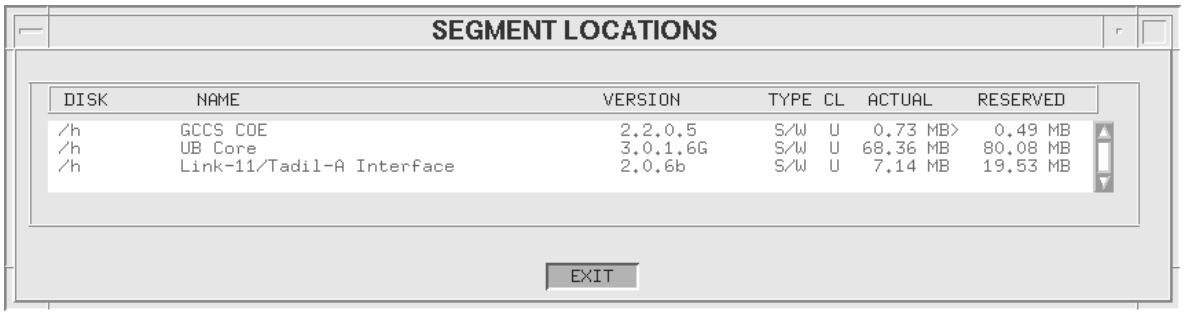


Figure 2-4 SEGMENT LOCATIONS Window

This window provides the following information:

DISK
Directory on the local workstation where the segment is installed.

NAME
Name of the segment.

VERSION
Version number of the segment.

TYPE
Type of the segment.

CL
Classification of the segment.

ACTUAL
Actual space in use by the segment on the local workstation.

RESERVED
Space reserved for the segment on the local workstation at the time of installation.

b. To exit the SEGMENT LOCATIONS window and return to the SEGMENT INSTALLER window, click EXIT.

16. To exit the SEGMENT INSTALLER window, click EXIT.

Section 3

How Do I Use It?

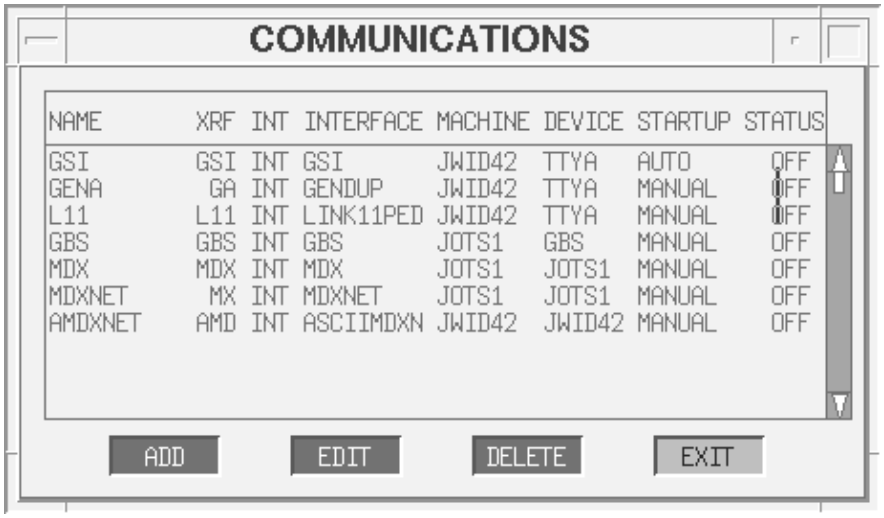
The following instructions explain how to:

- Add an NMEA2 channel.
- Activate an NMEA2 channel.

To add an NMEA2 channel:

1. At the workstation with the GPS_TIME segment installed (typically the COP master node), log into GCCS, following your normal site procedures.

2. From the Comms menu, select Communications. The COMMUNICATIONS window appears.



-Figure 3- 1 COMMUNICATIONS Window

The COMMUNICATIONS window contains an entry under the following column headings for each channel in the database:

NAME

Unique channel name.

XREF
Unique three-character communications cross-reference code for the channel.

INT
Type of channel; either INT (internal channel) or EXT (external channel).

INTERFACE
Type of interface used by the channel.

MACHINE
Name of the machine used by the channel to transmit and receive messages; displays local hostname.

DEVICE
Name of the machine used by the channel to transmit and receive messages; displays parent hostname.

STARTUP
Type of start-up specified for the channel; either AUTO (channel is activated automatically upon system start-up) or MANUAL (channel must be activated manually using the START option, discussed below).

STATUS
Channel status; either ON or OFF.

The COMMUNICATIONS window also contains a pop-up menu providing the following options that can be applied to a channel in the database. To apply an option, first select the appropriate channel from the list in the window; then place the pointer anywhere within the window, click the rightmost mouse button, and select the desired option from the menu that appears.

CAUTION: Using the START, STOP, or RESTART option can cause messages that are enroute to be lost. Be careful when using these options. Do not turn channels on and off unnecessarily.

START
To activate a channel with a current STATUS of OFF.

STOP
To de-activate a channel with a current STATUS of ON.

RESTART

To activate a channel, whether its current STATUS is ON or OFF.

WINDOW

To view raw data being received or transmitted over a channel.

3. In the COMMUNICATIONS window, click ADD. The ADD CHANNEL window appears.

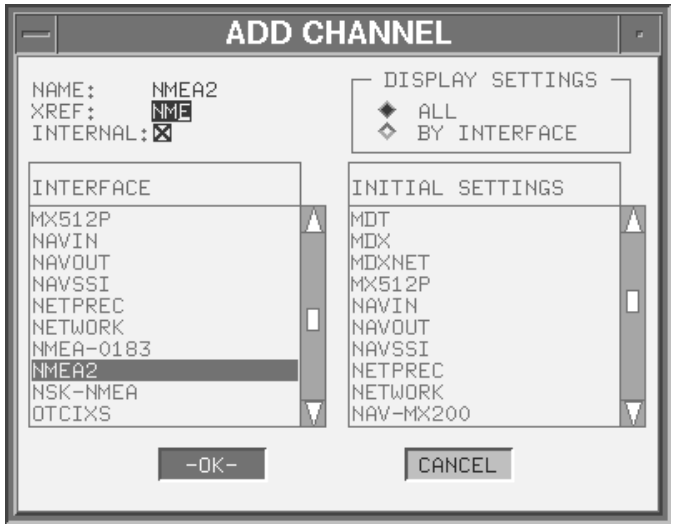


Figure 3- 2 ADD CHANNEL Window

4. In the NAME field, enter a name for the comms channel. Name is restricted to alphanumeric, underline (_), and hyphen (-) characters.

5. In the XREF field, enter the unique three-character communications cross-reference code for the channel.

6. Verify that the INTERNAL checkbox is selected.

7. In the DISPLAY SETTINGS box, verify that ALL is selected.

8. From the INTERFACE list, select NMEA2. The NMEA2 interface automatically determines the selection in the INITIAL SETTINGS list.

9. To create the NMEA2 channel, click OK. The COMMUNICATIONS window appears, displaying an entry for the NMEA2 channel.

10. Activate the NMEA2 channel as described below.

To activate an NMEA2 channel:

CAUTION: It is extremely important for every master node to ensure that both its GPS device and its NMEA2 channel are activated as part of its login procedure at the start of each day. In order for the COP to provide a true "common operational picture," each master node must be closely synchronized with the GPS so that the integrity of time-sensitive track data is maintained.

1. At the workstation serving as the master node, log into GCCS, following your normal site procedures.

2. From the Comms menu, select Communications. The COMMUNICATIONS window appears. (For a description of the COMMUNICATIONS window, see Figure 3-1).

3. Verify that the GPS device is connected to the device indicated for the NMEA2 channel in the DEVICE field in the COMMUNICATIONS window.

4. To activate the NMEA2 channel, use one of the following methods:

   a. From the list in the COMMUNICATIONS window, select the NMEA2 channel and then select START from the window's pop-up menu (displayed by placing the pointer anywhere within the window and clicking the rightmost mouse button).

   b. Apply the NMEA2 channel's AUTOSTART feature, which specifies that the channel should be activated automatically upon start-up. (The AUTOSTART feature is controlled by the AUTOSTART checkbox in the EDIT NMEA2 window, displayed by double-clicking the entry for the NMEA2 channel in the COMMUNICATIONS window.)

   NOTE: The NMEA2 interface will synchronize the system time with GPS time once GPS has a positional fix.